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NEWS	3	JAN 16	CA/CAplus Company Name Thesaurus enhanced and reloaded
NEWS	4	JAN 16	IPC version 2007.01 thesaurus available on STN
NEWS	5	JAN 16	WPIDS/WPINDEX/WPIX enhanced with IPC 8 reclassification data
NEWS	6	JAN 22	CA/CAplus updated with revised CAS roles
NEWS	7	JAN 22	CA/CAplus enhanced with patent applications from India
NEWS	8	JAN 29	PHAR reloaded with new search and display fields
NEWS	9	JAN 29	CAS Registry Number crossover limit increased to 300,000 in multiple databases
NEWS	10	FEB 15	PATDPASPC enhanced with Drug Approval numbers
NEWS	11	FEB 15	RUSSIAPAT enhanced with pre-1994 records
NEWS	12	FEB 23	KOREAPAT enhanced with IPC 8 features and functionality
NEWS	13	FEB 26	MEDLINE reloaded with enhancements
NEWS	14	FEB 26	EMBASE enhanced with Clinical Trial Number field
NEWS	15	FEB 26	TOXCENTER enhanced with reloaded MEDLINE
NEWS	16	FEB 26	IFICDB/IFIPAT/IFIUDB reloaded with enhancements
NEWS	17	FEB 26	CAS Registry Number crossover limit increased from 10,000 to 300,000 in multiple databases
NEWS	18	MAR 15	WPIDS/WPIX enhanced with new FRAGHITSTR display format
NEWS	19	MAR 16	CASREACT coverage extended
NEWS	20	MAR 20	MARPAT now updated daily
NEWS	21	MAR 22	LWPI reloaded
NEWS	22	MAR 30	RDISCLOSURE reloaded with enhancements
NEWS	23	MAR 30	INPADOCDB will replace INPADOC on STN
NEWS	24	APR 02	JICST-EPLUS removed from database clusters and STN
NEWS	25	APR 30	GENBANK reloaded and enhanced with Genome Project ID field
NEWS	26	APR 30	CHEMCATS enhanced with 1.2 million new records
NEWS	27	APR 30	CA/CAplus enhanced with 1870-1889 U.S. patent records
NEWS	28	APR 30	INPADOC replaced by INPADOCDB on STN

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NEWS LOGIN	Welcome Banner and News Items
NEWS IPC8	For general information regarding STN implementation of IPC 8

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FULL ESTIMATED COST	0.21	0.21

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=> FIL CAPLUS

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.45	0.66

FILE 'CAPLUS' ENTERED AT 09:00:56 ON 01 MAY 2007
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FILE LAST UPDATED: 30 Apr 2007 (20070430/ED)

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```
=> s (silicon hydride or hydrogen terminated silicon or hydrogen!terminated Si?)
         822276 SILICON
            475 SILICONS
         822448 SILICON
                   (SILICON OR SILICONS)
         105061 HYDRIDE
          25009 HYDRIDES
         113146 HYDRIDE
                   (HYDRIDE OR HYDRIDES)
           3744 SILICON HYDRIDE
                   (SILICON(W)HYDRIDE)
         990320 HYDROGEN
           5970 HYDROGENS
         993654 HYDROGEN
                   (HYDROGEN OR HYDROGENS)
          97389 TERMINATED
         822276 SILICON
            475 SILICONS
         822448 SILICON
                   (SILICON OR SILICONS)
            726 HYDROGEN TERMINATED SILICON
                   (HYDROGEN(W)TERMINATED(W)SILICON)
              0 HYDROGEN!TERMINATED
       11402653 SI?
              0 HYDROGEN!TERMINATED SI?
                   (HYDROGEN!TERMINATED(W)SI?)
L1          4453 (SILICON HYDRIDE OR HYDROGEN TERMINATED SILICON OR HYDROGEN!TERM
                 INATED SI?)

=> s l1 and (surface or substrate)
        2403185 SURFACE
         450886 SURFACES
        2586837 SURFACE
                   (SURFACE OR SURFACES)
         950716 SUBSTRATE
         425069 SUBSTRATES
        1178751 SUBSTRATE
                   (SUBSTRATE OR SUBSTRATES)
L2          2282 L1 AND (SURFACE OR SUBSTRATE)

=> s l2 and (Si!C linkage or Si-O linkage)
           1885 SI!C
          84586 LINKAGE
          28440 LINKAGES
         108057 LINKAGE
                   (LINKAGE OR LINKAGES)
             24 SI!C LINKAGE
                   (SI!C(W)LINKAGE)
         685422 SI
           4266 SIS
         689216 SI
                   (SI OR SIS)
        1539767 O
          84586 LINKAGE
          28440 LINKAGES
         108057 LINKAGE
                   (LINKAGE OR LINKAGES)
             72 SI-O LINKAGE
                   (SI(W)O(W)LINKAGE)
L3            2 L2 AND (SI!C LINKAGE OR SI-O LINKAGE)

=> d l3 ibib abs hitstr tot
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L3 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:586788 CAPLUS
DOCUMENT NUMBER: 143:275459
TITLE: Photochemical-Controlled Switching Based on Azobenzene Monolayer Modified Silicon (111) Surface
AUTHOR(S): Wen, Yongqiang; Yi, Wenhui; Meng, Lingjie; Feng, Min; Jiang, Guiyuan; Yuan, Wenfang; Zhang, Yuqi; Gao, Hongjun; Jiang, Lei; Song, Yanlin
CORPORATE SOURCE: Organic Solids Laboratory, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China
SOURCE: Journal of Physical Chemistry B (2005), 109(30), 14465-14468
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Azobenzene-containing compds. were covalently attached onto Si(111) surfaces via Si-O linkages using a two-step procedure. The modified Si(111) surfaces were characterized by XPS and Fourier transform IR (FT-IR) spectroscopy measurements. The monolayer surface showed preferably chemical stability. Switchable photoisomerizability of azobenzene mols. on these modified surfaces was observed in response to alternating UV and visible light exposure. The measured conductivity showed distinct difference with trans and cis forms of azobenzene compds. on as-modified Si(111) surfaces.
REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:470553 CAPLUS
DOCUMENT NUMBER: 131:205007
TITLE: Covalent modification of hydrogen-terminated silicon surfaces
AUTHOR(S): Kim, Namyong Y.; Laibinis, Paul E.
CORPORATE SOURCE: Departments of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA
SOURCE: ACS Symposium Series (1999), 727(Inorganic Materials Synthesis), 157-168
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Alcs. and Grignard reagents react with the hydrogen-terminated surfaces of porous silicon, Si(100), and Si(111) and form covalently attached organic layers. With alcs., the reaction occurs at temps. of 40 to 90°C and is compatible with the presence of functionalities such as halides, olefins, esters, and carboxylic acids within the reacting alc.; the resulting films attach to the silicon surface by Si-O linkages. With Grignard reagents, the reaction occurs at room temperature and forms Si-C bonds with the support. For both the alcs. and Grignard reagents, their attachment to the surface occurs concurrently with the cleavage of Si-Si bonds and an etching of the silicon framework during the reaction. With Grignard reagents, the level of etching is slight and easily controlled, thereby allowing straightforward, reproducible formation of stable films on the porous and crystalline silicon supports. For both reactions, the organic layer is directly attached to the silicon substrate.
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

```
=> s l2 and (biomolecule or protein or DNA or RNA or carbohydrate)
           685 BIOMOLECULE
          3338 BIOMOLECULES
          4007 BIOMOLECULE
                 (BIOMOLECULE OR BIOMOLECULES)
         12379 BIOMOL
         12657 BIOMOLS
         20411 BIOMOL
                 (BIOMOL OR BIOMOLS)
         21135 BIOMOLECULE
                 (BIOMOLECULE OR BIOMOL)
       1999798 PROTEIN
       1398649 PROTEINS
       2327646 PROTEIN
                 (PROTEIN OR PROTEINS)
        826929 DNA
         19240 DNAS
        829933 DNA
                 (DNA OR DNAS)
        326542 RNA
         26906 RNAS
        331499 RNA
                 (RNA OR RNAS)
        130291 CARBOHYDRATE
        150195 CARBOHYDRATES
        218053 CARBOHYDRATE
                 (CARBOHYDRATE OR CARBOHYDRATES)
L4          28 L2 AND (BIOMOLECULE OR PROTEIN OR DNA OR RNA OR CARBOHYDRATE)

=> d 28 ibib abs hitstr tot
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L4   ANSWER 28 OF 28  CAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         1997:221989  CAPLUS
DOCUMENT NUMBER:          126:314404
TITLE:                    Polymethacryloxypropylhydrosiloxane deactivation as
                          pretreatment of polymer-coated fused silica columns
                          for capillary electrophoresis
AUTHOR(S):                Fridstroem, A.; Lundell, N.; Nyholm, L.; Markides, K.
                          E.
CORPORATE SOURCE:         Analytical chemistry, University of Uppsala, Uppsala,
                          751 21, Swed.
SOURCE:                   Journal of Microcolumn Separations (1997), 9(2), 73-80
                          CODEN: JMSEEJ; ISSN: 1040-7685
PUBLISHER:                Wiley
DOCUMENT TYPE:            Journal
LANGUAGE:                 English
AB   A new polymer, polymethacryloxypropylhydrosiloxane (PMAHS), was developed
     and used as both a deactivating layer and an intermediate layer for stable
     coating of an uncharged polymer on fused silica capillaries in capillary
     electrophoresis.  The deactivation procedure is based on a silicon
     hydride dehydrocondensation reaction which produces a thin and
     heavily crosslinked siloxane resin on the fused silica surface.
     The resin effectively covers any unreacted silanols, while the methacrylic
     substituents of the deactivation layer provide surface
     wettability and reaction sites for covalent binding of a polymeric top
     layer known to facilitate sepns. of charged biomols.  In this
     study, polyacrylamide was statically coated and crosslinked to the
     deactivation polymer.  The PMAHS-deactivated columns with crosslinked
     polyacrylamide coatings gave an electroosmotic flow of < 0.4 + 10-4
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cm2 V-1 s-1, independent of pH, between pH 2.5 and 9.2. Four basic proteins were used to evaluate the performance of the columns. The migration times were reproducible with a relative standard deviation of <0.5%. In addition, the efficiency of the crosslinked polyacrylamide column was stable over at least 5 days of harsh testing.

L4 ANSWER 1 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:1341513 CAPLUS
DOCUMENT NUMBER: 146:224225
TITLE: Self-Assembled Monolayers with Latent Aldehydes for Protein Immobilization
AUTHOR(S): Hahn, Christoph D.; Leitner, Christa; Weinbrenner, Theo; Schlapak, Robert; Tinazli, Ali; Tampe, Robert; Lackner, Bernd; Steindl, Christian; Hinterdorfer, Peter; Gruber, Hermann J.; Hoelzl, Martin
CORPORATE SOURCE: Institute of Biophysics and Institute of Organic Chemistry, University of Linz, Linz, A-4040, Austria
SOURCE: Bioconjugate Chemistry (2007), 18(1), 247-253
CODEN: BCCHES; ISSN: 1043-1802
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Aldehyde functions are widely used for immobilization of biomols . on glass surfaces but have found little attention for biofunctionalization of self-assembled monolayers (SAMs) on gold, due to interference between thiol and aldehyde functions. This problem was recently solved by synthesis of an alkanethiol that carried a vicinal diol group [Jang et al. (2003) Nano Lett. 3, 691-694]. The latter served as a latent aldehyde function that was unmasked by short exposure of the vicinal diol-terminated SAM to aqueous periodate. However, the synthesis of the new vicinal diol-terminated alkane thiol was time-consuming and had an overall yield of .apprx.3.5%. In the present study, a general modular strategy was introduced by which SAM components with vicinal diol functions were rapidly synthesized with high yield: this was accomplished by amide bond formation between a SAM-forming carboxylic acid (exemplified by lipoic acid and 16-mercaptohexadecanoic acid) with 3-aminopropane-1,2-diol, using suitable protecting groups. The disulfide or free thiol group afforded SAM formation on gold and, after periodate oxidation of the vicinal diol functions, proteins were covalently bound via their lysine residues. At 1 mg/mL protein concentration, complete surface coverage was reached within minutes. No further protein was bound by nonspecific adsorption, but cognate proteins were specifically bound with high capacity. Pyrogallol-O-hexadecanoic acid and 10-undecenoic acid were also coupled with 3-aminopropane-1,2-diol by amide bond formation, thereby producing latent aldehyde-containing SAM components for metal oxides and hydrogen-terminated silicon, resp., to show the general usefulness of the new synthetic design.
REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:777148 CAPLUS
DOCUMENT NUMBER: 145:196336
TITLE: Molecular monolayers on silicon surfaces
AUTHOR(S): Lopinski, G. P.; Wayner, D. D. M.
CORPORATE SOURCE: Steacie Institute for Molecular Sciences, Ottawa, ON, Can.
SOURCE: Properties of Single Organic Molecules on Crystal Surfaces (2006), 287-331. Editor(s): Gruetter, Peter; Hofer, Werner; Rosei, Federico. Imperial College Press: London, UK.
CODEN: 69IIF4; ISBN: 1-86094-628-3

DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB A review. Formation of organic mol. monolayers on silicon surfaces offers the promise of enhancing the functionality of existing silicon-based materials and devices. These monolayers can function as passivating layers, stabilizing the properties of the underlying substrate, or used to tailor its phys., chemical and electronic properties. Monolayers can also impart new functionality to the silicon surface, such as mol. recognition capability. In this chapter the methods are reviewed that were developed for the formation of mol. monolayers via reactions with hydrogen terminated silicon, and summarize the current understanding regarding the mechanisms behind these reactions. A variety of chemical approaches were employed to form alkyl monolayers covalently attached to the surface via Si-C, Si-O, or Si-N linkages. Multi-step reactions were developed to build up more complex chemical functionalities as well as for the attachment of biomols. such as DNA and proteins. The characterization of the resulting monolayers, employing a wide variety of surface science probes, will be discussed. Investigations of the electronic properties of these layers with both electrochem. and solid-state approaches are summarized. Attempts to demonstrate the utility of these monolayers for mol. electronic and chemical/bio sensing applications are critically reviewed.
REFERENCE COUNT: 104 THERE ARE 104 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:553036 CAPLUS
DOCUMENT NUMBER: 146:387899
TITLE: Chemical reactivity of hydrogen-terminated crystalline silicon surfaces
AUTHOR(S): Boukherroub, Rabah
CORPORATE SOURCE: Cite Scientifique, Institut de Recherche Interdisciplinaire, Villeneuve d'Ascq, 59652, Fr.
SOURCE: Current Opinion in Solid State & Materials Science (2006), Volume Date 2005, 9(1-2), 66-72
CODEN: COSSFX; ISSN: 1359-0286
PUBLISHER: Elsevier Ltd.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review. Chemical functionalization of hydrogen-terminated silicon surfaces holds considerable promise from both fundamental and applied research aspects. This article covers a selection of examples concerning the proposed strategies for chemical grafting of different organic functionalities and further immobilization of biol. mols. on the surface through covalent bonding. From the fundamental view point, the reaction mechanism is discussed in terms of electron-hole pair excitons generation or formation of delocalized radical cations at the silicon surface for the light-induced surface hydrosilylation. The electronic properties of the silicon/organic monolayer interface were studied in details and direct detection of DNA hybridization using electrochem. means is presented.
REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:245977 CAPLUS
TITLE: Positioning single molecules on protein -resistant surfaces
AUTHOR(S): Cai, Chengzhi; Qin, Guoting; Gu, Jianhua; Yam, Chi Ming; Zhu, Xiang; Li, Sha

CORPORATE SOURCE: Department of Chemistry, University of Houston, Houston, TX, 77204, USA
SOURCE: Abstracts of Papers, 231st ACS National Meeting, Atlanta, GA, United States, March 26-30, 2006 (2006), COLL-437. American Chemical Society: Washington, D. C.
CODEN: 69HYEC
DOCUMENT TYPE: Conference; Meeting Abstract; (computer optical disk)
LANGUAGE: English

AB The ability to control the nanoscale location of individual bio-mols. on bio-compatible surfaces will open up new possibilities for biol. research at nanoscale. Towards this goal, we have developed a robust system based on oligo(ethylene glycol) (OEG) monolayers grown by hydrosilylation of OEG-terminated alkenes on hydrogen-terminated silicon surfaces. These films prepared under optimized conditions nearly eliminated the non-specific adsorption of a wide variety of proteins. We demonstrated that these ultra-flat monolayers can be locally oxidized under a biased AFM tip to generate patterns presenting carboxylic acid groups for anchoring large mols. We have achieved a pattern resolution similar to 10 nm - close to the size of large, adsorbed protein or dendrimer mols. The preparation of arrays of such single mols. and the subsequent studies will be presented.

L4 ANSWER 5 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1142628 CAPLUS
DOCUMENT NUMBER: 145:162452
TITLE: Covalent functionalization and biomolecular recognition properties of DNA-modified silicon nanowires
AUTHOR(S): Streifer, Jeremy A.; Kim, Heesuk; Nichols, Beth M.; Hamers, Robert J.
CORPORATE SOURCE: Department of Chemistry, University of Wisconsin-Madison, Madison, WI, 53706, USA
SOURCE: Nanotechnology (2005), 16(9), 1868-1873
CODEN: NNOTER; ISSN: 0957-4484
PUBLISHER: Institute of Physics Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The direct covalent modification of silicon nanowires with DNA oligonucleotides, and the subsequent hybridization properties of the resulting nanowire-DNA adducts, are described. XPS and fluorescence imaging techniques have been used to characterize the covalent photochem. functionalization of hydrogen-terminated silicon nanowires grown on SiO2 substrates and the subsequent chemical to form covalent adducts with DNA. XPS measurements show that photochem. reaction of H-terminated Si nanowires with alkenes occurs selectively on the nanowires with no significant reaction with the underlying SiO2 substrate, and that the resulting mol. layers have a packing d. identical to that of planar samples. Functionalization with a protected amine followed by deprotection and use of a bifunctional linker yields covalently linked nanowire-DNA adducts. The biomol. recognition properties of the nanowires were tested via hybridization with fluorescently tagged complementary and non-complementary DNA oligonucleotides, showing good selectivity and reversibility, with no significant non-specific binding to the incorrect sequences or to the underlying SiO2 substrate. Our results demonstrate that the selective nature of the photochem. functionalization chemical permits silicon nanowires to be grown, functionalized, and characterized before being released from the underlying SiO2 substrate. Compared with solution-phase modification, the ability to perform all chemical and characterization while still attached to the underlying support makes this

a convenient route toward fabrication of well characterized, biol. modified silicon nanowires.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 6 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1059457 CAPLUS
DOCUMENT NUMBER: 143:455035
TITLE: Reaction of Porous Silicon with Both End-Functionalized Organic Compounds Bearing α-Bromo and ω-Carboxy Groups for Immobilization of Biomolecules
AUTHOR(S): Guo, Dong-Jie; Xiao, Shou-Jun; Xia, Bing; Wei, Shuai; Pei, Jia; Pan, Yi; You, Xiao-Zeng; Gu, Zhong-Ze; Lu, Zuhong
CORPORATE SOURCE: State Key Laboratory of Coordination Chemistry, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing, 210093, Peop. Rep. China
SOURCE: Journal of Physical Chemistry B (2005), 109(43), 20620-20628
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Both end-functionalized (α-bromo and ω-carboxy) compds. were first tested for the radical reaction on the silicon-hydride (Si-H) terminated porous silicon (PSi) with/without the presence of diacyl peroxide initiator under microwave irradiation Then the carboxylic acid monolayers (CAMs) assembled on PSi through the robust Si-C bonds were converted to amino-reactive linker, N-hydroxysuccinimide (NHS)-ester, terminated monolayers. And finally two proteins of bovine serum albumin (BSA) and lysozyme (Lys) were immobilized through amide bonds. The optimum PSi membrane for protein immobilization without collapse, with parameters of porous radii 4-10 nm and depth 0.2-4.6 μm, was prepared from the (100)-oriented p-type silicon wafer. The chemical converted surface products were monitored with Fourier transform IR spectroscopy (FTIR), XPS, and field emission SEM (FESEM).

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1039975 CAPLUS
DOCUMENT NUMBER: 143:402125
TITLE: Formation of Tetra(ethylene oxide) Terminated Si-C Linked Monolayers and Their Derivatization with Glycine: An Example of a Generic Strategy for the Immobilization of Biomolecules on Silicon
AUTHOR(S): Boecking, Till; Kilian, Kristopher A.; Hanley, Tracey; Ilyas, Suhrawardi; Gaus, Katharina; Gal, Michael; Gooding, J. Justin
CORPORATE SOURCE: School of Physics and School of Chemistry, University of New South Wales, Sydney, 2052, Australia
SOURCE: Langmuir (2005), 21(23), 10522-10529
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Surface modification with oligo(ethylene oxide) functionalized monolayers terminated with reactive headgroups constitutes a powerful strategy to provide specific coupling of biomols. with simultaneous protection from nonspecific adsorption on surfaces for the preparation of biorecognition interfaces. To date, oligo(ethylene

oxide) functionalized monolayer-forming mols. which can be activated for attachment of biomols. but which can selectively form monolayers onto hydrogen terminated silicon have yet to be developed. Here, self-assembled monolayers (SAMs) containing tetra(ethylene oxide) moieties protected with tert-Bu dimethylsilyl groups were formed by thermal hydrosilylation of alkenes with single-crystal Si(111)-H. The protection group was used to avoid side reactions with the hydride terminated silicon surface. Monolayer formation was carried out using solns. of the alkene in the high-boiling-point solvent 1,3,5-triethylbenzene. The protecting group was removed under very mild acidic conditions to yield a free hydroxyl functionality, a convenient surface moiety for coupling of biol. entities via carbamate bond formation. The chemical composition and structure of the monolayers before and after deprotection were characterized by XPS and X-ray reflectometry. To demonstrate the utility of this surface for covalent modification, two reagents were compared and contrasted for their ability to activate the surface hydroxyl groups for coupling of free amines, carbonyl diimidazole (CDI), and disuccinimidyl carbonate (DSC). Anal. of XP spectra before and after activation by CDI or DSC, and after subsequent reaction with glycine, provided quant. information on the extent of activation and overall coupling efficiencies. CDI activated surfaces gave poor coupling yields under various conditions, whereas DSC mediated activation followed by aminolysis at neutral pH was found to be an efficient method for the immobilization of amines on tetra(ethylene oxide) modified surfaces.

REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 8 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:737519 CAPLUS

TITLE: Ethylene oxide molecules covalently bonded to silicon and resulting protein resistance

AUTHOR(S): Hacker, Christina A.; Liu, Priscilla; Vanderah, David J.; Richter, Curt A.; Richter, Lee J.

CORPORATE SOURCE: Semiconductor Electronics Division, National Institute of Standards and Technology, Gaithersburg, MD, 20899, USA

SOURCE: Abstracts of Papers, 230th ACS National Meeting, Washington, DC, United States, Aug. 28-Sept. 1, 2005 (2005), COLL-043. American Chemical Society: Washington, D. C.
CODEN: 69HFCL

DOCUMENT TYPE: Conference; Meeting Abstract; (computer optical disk)

LANGUAGE: English

AB Ethylene oxide monolayers have been well studied on surfaces for their ability to resist protein adsorption. Self-assembled monolayers on metals have been shown to differ in mol. conformation and packing d., which ultimately alters the protein resistance properties. Moving from a metal substrate to a semiconductor substrate offers many advantages. While robust protein resistance is necessary for biocompatible applications of silicon such as implants and biosensors, the monolayer conformation remains largely unknown. We examine four custom synthesized ethylene oxide mols. on the silicon surface that differ by the reactive functional group; thiol, alc., aldehyde, and alkene. These mols. react with hydrogen-terminated silicon to form covalently bonded monolayers. The differing reactivity of the functional groups leads to differing surface coverage. Thorough characterization of ethylene oxide monolayers on silicon and the resultant protein resistive properties will be presented.

L4 ANSWER 9 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:328149 CAPLUS

DOCUMENT NUMBER: 143:55185
TITLE: Comparison of resistance to protein adsorption and stability of thin films derived from α-hepta-(ethylene glycol) methyl ω-undecenyl ether on HSi(111) and HSi(100) surfaces
AUTHOR(S): Yam, Chi Ming; Gu, Jianhua; Li, Sha; Cai, Chengzhi
CORPORATE SOURCE: Department of Chemistry and Center for Materials Chemistry, University of Houston, Houston, TX, 77204-5003, USA
SOURCE: Journal of Colloid and Interface Science (2005), 285(2), 711-718
CODEN: JCISA5; ISSN: 0021-9797
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Oligo(ethylene glycol)-terminated thin films were prepared by photo-induced hydrosilylation of α-hepta-(ethylene glycol) Me ω-undecenyl ether (EG7) on hydrogen-terminated silicon (111) and (100) surfaces. Their resistance to protein adsorption, and stabilities (from hours to days) under a wide variety of conditions, such as air, water, biol. buffer, acid, and base, were investigated using contact-angle goniometry and ellipsometry techniques. Results indicated higher stability of the films chemisorbed on Si(111) than on Si(100). Furthermore, micron-sized patterns were fabricated on the films via AFM anodization lithog. Using atomic force microscopy (AFM) and fluorescence microscopy, we demonstrated that various proteins including fibrinogen, avidin, and bovine serum albumin (BSA) predominately adsorbed onto the patterns, but not the rest of the film surfaces

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 10 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:303186 CAPLUS
DOCUMENT NUMBER: 142:370337
TITLE: Attachment of molecules to surfaces
INVENTOR(S): Ofstead, Ronald F.; Swanson, Melvin J.; Swan, Dale G.
PATENT ASSIGNEE(S): Surmodics, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 23 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005074478	A1	20050407	US 2003-677022	20031001
AU 2004278408	A1	20050414	AU 2004-278408	20040930
CA 2536303	A1	20050414	CA 2004-2536303	20040930
WO 2005033158	A2	20050414	WO 2004-US32443	20040930
WO 2005033158	A3	20050602		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,

SN, TD, TG

EP 1668050	A2	20060614	EP 2004-789464	20040930
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
JP 2007510889	T	20070426	JP 2006-534165	20040930
PRIORITY APPLN. INFO.:			US 2003-677022	A 20031001
			WO 2004-US32443	W 20040930

AB The present invention relates to methods, reagents, and substrates that can be used for, for example, immobilizing biomols., such as nucleic acids and proteins. In an embodiment, the present invention relates to surfaces coated with a polymer according to the present invention. In an embodiment, the present invention relates to methods for thermochem. and/or photochem. attaching mols. to a surface at a high d.

L4 ANSWER 11 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:188891 CAPLUS
TITLE: Protein-resistant monolayers derived from hydrosilylation of α-oligo(ethylene glycol)-ω-alkenes on hydrogen-terminated Si(111) surfaces
AUTHOR(S): Yam, Chi Ming; Li, Sha; Cai, Chengzhi
CORPORATE SOURCE: Department of Chemistry, University of Houston, Houston, TX, 77204, USA
SOURCE: Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005), COLL-187. American Chemical Society: Washington, D. C.
CODEN: 69GQMP
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB Atomically flat, homogeneous, and protein-resistant monolayers were prepared by photo-induced hydrosilylation of α-oligo(ethylene glycol)-ω-alkenes (OEG) with the general formula CH2=CH(CH2)m(OCH2CH2)nOCH3 on hydrogen-terminated silicon (111) surfaces. The OEG films were characterized by contact-angle goniometry, ellipsometry, atomic force microscopy (AFM), and XPS. Packing d. (surface coverage) and resistance to protein (fibrinogen) adsorption of the OEG films were examined as a function of the chain length (m, n) and the deposition conditions. Under optimal conditions, the non-specific adsorption of protein on the OEG films was reduced to <1%.

L4 ANSWER 12 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:941161 CAPLUS
DOCUMENT NUMBER: 142:80544
TITLE: Selective adsorption of DNA onto SiO2 surface in SiO2/SiH pattern
AUTHOR(S): Tanaka, Shin-ichi; Taniguchi, Masateru; Kawai, Tomoji
CORPORATE SOURCE: The Institute of Scientific and Industrial Research, Osaka University, Osaka, 567-0047, Japan
SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (2004), 43(10), 7346-7349
CODEN: JAPNDE
PUBLISHER: Japan Society of Applied Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
AB DNA (DNA) mols. can be selectively adsorbed onto a SiO2 surface in SiO2/SiH pattern, fabricated using photolithog., by adding MgCl2 to a DNA solution Since DNA mols. can be adsorbed onto a Si substrate through Mg2+, the adsorption of DNA mols. in a SiO2/SiH pattern is influenced by the concentration of

MgCl2 and the difference in chemical property between a SiO2 surface and a SiH surface. The optimum concentration of MgCl2 at which DNA mols. are selectively adsorbed onto a SiO2 surface was 0.1 mM.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 13 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:912848 CAPLUS
DOCUMENT NUMBER: 142:71122
TITLE: Protein-resistant monolayers prepared by hydrosilylation of α-oligo(ethylene glycol)-ω-alkenes on hydrogen-terminated silicon (111) surfaces
AUTHOR(S): Yam, Chi Ming; Lopez-Romero, Juan Manuel; Gu, Jianhua; Cai, Chengzhi
CORPORATE SOURCE: Department of Chemistry, & Center for Materials Chemistry, University of Houston, Houston, TX, 77204, USA
SOURCE: Chemical Communications (Cambridge, United Kingdom) (2004), (21), 2510-2511
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:71122
AB Atomically flat, homogeneous, and protein-resistant monolayers can be readily prepared on H-Si(111) surfaces by photo-induced hydrosilylation of α-oligo(ethylene glycol)-ω-alkenes.
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 14 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:910310 CAPLUS
DOCUMENT NUMBER: 143:35740
TITLE: Adsorption of DNA molecule and DNA patterning on Si substrate
AUTHOR(S): Tanaka, Shin-ichi; Taniguchi, Masateru; Kawai, Tomoji
CORPORATE SOURCE: The Institute of Scientific and Industrial Research, CREST JST, Osaka University, Ibaraki, Osaka, 567-0047, Japan
SOURCE: AIP Conference Proceedings (2004), 725(DNA-Based Molecular Electronics), 3-8
CODEN: APCPCS; ISSN: 0094-243X
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
AB DNA mol. is a candidate elec. material for mol. devices. However, in order to realize a DNA mol. device, it is necessary to combine characteristics of DNA with semiconductor technol. DNA mol. is adsorbed not on the SiH surface but on the SiO2 surface by adding MgCl2 to DNA solution In addition, DNA mol. can be selectively adsorbed to SiO2 surface in SiO2/SiH pattern, which is fabricated using photolithog., and DNA patterning is made on Si substrate. Since DNA mol. can be adsorbed to Si substrate through Mg2+, the adsorption of DNA mol. in SiO2/SiH pattern is depended on the concentration of MgCl2 and the difference of chemical property between SiO2 surface and SiH surface. The optimum concentration of MgCl2 in which DNA is selectively adsorbed to SiO2 surface was 0.1 mM.
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 15 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:830865 CAPLUS
DOCUMENT NUMBER: 142:23449
TITLE: Syntheses of alkenylated carbohydrate derivatives toward the preparation of monolayers on silicon surfaces
AUTHOR(S): de Smet, Louis C. P. M.; Pukin, Aliaksei V.; Stork, Gerrit A.; de Vos, C. H. Ric; Visser, Gerben M.; Zuilhof, Han; Sudhoelter, Ernst J. R.
CORPORATE SOURCE: Laboratory of Organic Chemistry, Wageningen University, Wageningen, 6703 HB, Neth.
SOURCE: Carbohydrate Research (2004), 339(15), 2599-2605
CODEN: CRBRAT; ISSN: 0008-6215
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:23449
AB This note describes the synthesis of different alkenylated carbohydrate derivs. suitable for direct attachment to hydrogen-terminated silicon surfaces . The derivs. were alkenylated at the C-1 position, while the remaining hydroxyl groups were protected. The development of such new carbohydrate-based sensing elements opens the access to new classes of biosensors.
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 16 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:712458 CAPLUS
DOCUMENT NUMBER: 141:376520
TITLE: Submicron patterning of DNA oligonucleotides on silicon
AUTHOR(S): Yin, H. B.; Brown, T.; Wilkinson, J. S.; Eason, R. W.; Melvin, T.
CORPORATE SOURCE: Microelectronics Research Centre, School of Electronics and Computer Science, University of Southampton, Highfield, SO17 1BJ, UK
SOURCE: Nucleic Acids Research (2004), 32(14), e118/1-e118/7
CODEN: NARHAD; ISSN: 0305-1048
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The covalent attachment of DNA oligonucleotides onto crystalline silicon (100) surfaces, in patterns with submicron features, in a straightforward, two-step process is presented. UV light exposure of a hydrogen-terminated silicon (100) surface coated with alkenes functionalized with N-hydroxysuccinimide ester groups resulted in the covalent attachment of the alkene as a monolayer on the surface. Submicron-scale patterning of surfaces was achieved by illumination with an interference pattern obtained by the transmission of 248 nm excimer laser light through a phase mask. The N-hydroxysuccinimide ester surface acted as a template for the subsequent covalent attachment of aminohexyl-modified DNA oligonucleotides. Oligonucleotide patterns, with feature sizes of 500 nm, were reliably produced over large areas. The patterned surfaces were characterized with atomic force microscopy, SEM, epifluorescence microscopy and ellipsometry. Complementary oligonucleotides were hybridized to the surface -attached oligonucleotides with a d. of 7+1012 DNA oligonucleotides per square centimeter. The method will offer much potential for the creation of nano- and micro-scale DNA biosensor devices in silicon.

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 17 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:223887 CAPLUS
TITLE: Nanometer-sized molecular arrays on silicon surfaces
AUTHOR(S): Cai, Chengzhi; Gu, Jianhua; Yam, Chi Ming; Li, Sha; Qin, Guotin
CORPORATE SOURCE: Department of Chemistry, University of Houston, Houston, TX, 77204-5003, USA
SOURCE: Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004 (2004), COLL-284. American Chemical Society: Washington, D. C.
CODEN: 69FGKM
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB The ability to control the location of individual bio-mols. on bio-compatible surfaces will open new possibilities for biol. research at nanoscale. Towards this goal, we have developed a new, robust system based on oligo(ethylene glycol) (OEG) monolayers grown by hydrosilylation (forming Si-C bonds) of OEG-terminated alkenes on hydrogen-terminated silicon surfaces . The results of ellipsometry, XPS, fluorescent imaging, and atomic force microscopy (AFM) studies showed that the OEG films prepared under optimized conditions strongly resisted the non-specific adsorption of a variety of proteins. We demonstrated that these atomically flat monolayers can be patterned by a biased AFM tip. The patterned areas bind a variety of proteins. In this way, we have prepared arrays of avidin spots. The diams. of the protein spots with an adjustable spacing are currently as small as 20 nm.

L4 ANSWER 18 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:28514 CAPLUS
DOCUMENT NUMBER: 141:256825
TITLE: Biofunctionalization of different surface types via αvβ3 integrin selective RGD peptides
AUTHOR(S): Dahmen, Claudia; Hersel, Ulrich; Kantlehner, Martin; Auernheimer, Joerg; Finsinger, Dirk; Meyer, Joerg; Schaffner, Patricia; Jonczyk, Alfred; Diefenbach, Beate; Nies, Berthold; Kessler, Horst
CORPORATE SOURCE: Institut fuer Organische Chemie und Biochemie II, Technische Universitaet Muenchen, Garching, D-85747, Germany
SOURCE: Peptides 2002, Proceedings of the European Peptide Symposium, 27th, Sorrento, Italy, Aug. 31-Sept. 6, 2002 (2002), 456-457. Editor(s): Benedetti, Ettore; Pedone, Carlo. Edizioni Ziino: Castellammare di Stabia, Italy.
CODEN: 69EYXG; ISBN: 88-900948-1-8
DOCUMENT TYPE: Conference
LANGUAGE: English
AB A cyclic pentapeptide, the highly potent αvβ3 and αvβ5-selective integrin antagonist cyclo (-RGDfV-), where the recognition motif RGD is fixed in a kinked conformation, was synthesized. The building block system generates new biocompatible surface with a high potential related to scientific questions as well as practical use. Improvement of implant materials as well as tissue culture dishes, and development of biosensors are only some possibilities for its application.
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS

L4 ANSWER 19 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:912712 CAPLUS
DOCUMENT NUMBER: 139:376186
TITLE: Methods for attaching nucleic acids to solid surfaces for development of microarrays
INVENTOR(S): Lewis, Mark A.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 13 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003215806	A1	20031120	US 2002-143439	20020509
PRIORITY APPLN. INFO.:			US 2002-143439	20020509

OTHER SOURCE(S): MARPAT 139:376186
AB The present invention provides a method for attaching nucleic acids to solid surfaces for development of microarrays. Solid surfaces used for attachment of target mols. include microwell plates, tubes, beads, microscope slides, silicon wafers or membranes. In one embodiment, the method and composition are used to immobilize nucleic acid probes onto plastic materials such as microwell plates, e.g., for use in hybridization assays. In a preferred embodiment, the method and composition are adapted for use with substantially flat surfaces, such as those provided by microscope slides and other plastic, silicon hydride, or organosilane-pretreated glass or silicone slide support surfaces. The reagent composition can then be used to attach a target mol. such as a biomol. (e.g., a nucleic acid) which in turn can be used for specific binding reactions (e.g., to hybridize a nucleic acid to its complementary strand).

L4 ANSWER 20 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:782128 CAPLUS
DOCUMENT NUMBER: 139:297357
TITLE: Preparation and microfabrication of organic monolayers toward immobilization of biomolecules
AUTHOR(S): Saito, Nagahiro; Sugimura, Hiroyuki; Takai, Osamu
CORPORATE SOURCE: Res. Associate, Nagoya Univ., Nagoya, 464-8603, Japan
SOURCE: Materia (2003), 42(9), 648-654
CODEN: MTERE2; ISSN: 1340-2625
PUBLISHER: Nippon Kinzoku Gakkai
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review on (a) preparation of organic monolayer on a Si substrate by self assembly method using alkoxysilane-terminated organic mols. in CVD and preparation of a Si substrate directly terminated by organic monolayer using hydrosilylation of olefins by H-terminated Si surface, (b) microfabrication of the monolayers by lithog. by vacuum UV or by using scanning probe microscopy, (c) evaluation of the monolayer by Kelvin probe force microscopy, and (d) the monolayers for microtemplates for biomol. immobilization.

L4 ANSWER 21 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:630806 CAPLUS
TITLE: Integrating DNA with semiconductor materials: Bio-inorganic hybrid devices
AUTHOR(S): Houlton, Andrew
CORPORATE SOURCE: Chemistry Laboratories, University of Newcastle upon

Tyne, Newcastle upon Tyne, NE1 7RU, UK
SOURCE: Abstracts of Papers, 226th ACS National Meeting, New York, NY, United States, September 7-11, 2003 (2003), COLL-003. American Chemical Society: Washington, D. C.
CODEN: 69EKY9
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

AB The integration of mol. compds. with bulk semiconductor materials is important to many future aspects of science and nanotechnol. This field has expanded significantly over the last few years as the functional group chemical of hydrogen-terminated silicon has been developed. This surface layer, formed during silicon wafer processing for microelectronics, is now known to react with a wide range of organic mols. to form well-ordered, covalently-bonded, monolayers. However, in addition to small mols. there is increasing interest in building up mol. features to nano- and even micrometre scale lengths. Due to its unique properties of self-organization, stability, linearity and programmable length, DNA has become a material of choice for such large-scale mol. construction. In this talk the chemical for integrating mol. chemical with hydrogen-terminated silicon is described and extended to the on-chip synthesis of DNA oligonucleotides. The properties of these DNA -modified semiconductor surfaces, as investigated by electrochem. and probe microscopy, are discussed. Finally, methods for enhancing the charge transport properties of the surface-bound DNA are highlighted.

L4 ANSWER 22 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:473127 CAPLUS
DOCUMENT NUMBER: 139:19309
TITLE: Epoxide polymer surfaces
INVENTOR(S): Swan, Dale G.; Swanson, Melvin J.
PATENT ASSIGNEE(S): Surmodics, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 15 pp., Cont.-in-part of U.S. Ser. No. 227913.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003113792	A1	20030619	US 2000-521545	20000309
US 6762019	B2	20040713		
US 5858653	A	19990112	US 1997-940213	19970930
US 2001014448	A1	20010816	US 1999-227913	19990108
US 6465178	B2	20021015		
CA 2398280	A1	20010913	CA 2001-2398280	20010227
WO 2001067129	A2	20010913	WO 2001-US40199	20010227
WO 2001067129	A3	20020606		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1263991	A2	20021211	EP 2001-927369	20010227

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

JP 2003526791	T	20030909	JP 2001-566048	20010227
US 2004209305	A1	20041021	US 2004-844667	20040512
PRIORITY APPLN. INFO.:			US 1997-940213	A2 19970930
			US 1999-227913	A2 19990108
			US 2000-521545	A 20000309
			WO 2001-US40199	W 20010227

AB Method and reagent composition for covalent attachment of target mols., such as nucleic acids, onto the surface of a substrate. The reagent composition includes epoxide groups capable of covalently binding to the target mol. Optionally, the composition can contain photoreactive groups for use in attaching the reagent composition to the surface. The reagent composition can be used to provide activated slides for use in preparing microarrays of nucleic acids.

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 23 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:308 CAPLUS
DOCUMENT NUMBER: 138:21759
TITLE: Method and epoxide-based reagent composition for covalent attachment of target molecules on substrate surfaces
INVENTOR(S): Swan, Dale G.; Swanson, Melvin J.
PATENT ASSIGNEE(S): Surmodics, Inc., USA
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001067129	A2	20010913	WO 2001-US40199	20010227
WO 2001067129	A3	20020606		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2003113792	A1	20030619	US 2000-521545	20000309
US 6762019	B2	20040713		
CA 2398280	A1	20010913	CA 2001-2398280	20010227
EP 1263991	A2	20021211	EP 2001-927369	20010227
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003526791	T	20030909	JP 2001-566048	20010227
PRIORITY APPLN. INFO.:			US 2000-521545	A 20000309
			US 1997-940213	A2 19970930
			US 1999-227913	A2 19990108
			WO 2001-US40199	W 20010227

AB The invention concerns a method and reagent composition for covalent attachment of target mols., such as nucleic acids, onto the surface of a substrate. The reagent composition includes epoxide groups capable of covalently binding to the target mol. Optionally, the composition can contain

photoreactive groups for use in attaching the reagent composition to the surface. The reagent composition can be used to provide activated slides for use in preparing microarrays of nucleic acids.

L4 ANSWER 24 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:877406 CAPLUS
DOCUMENT NUMBER: 138:96053
TITLE: Chemomechanical Production of Submicron Edge Width, Functionalized, .apprx.20 μm Features on Silicon
AUTHOR(S): Lua, Yit-Yian; Niederhauser, Travis L.; Wacaser, Brent A.; Mowat, Ian A.; Woolley, Adam T.; Davis, Robert C.; Fishman, Harvey A.; Linford, Matthew R.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT, 84602, USA
SOURCE: Langmuir (2003), 19(4), 985-988
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We recently reported that monolayers on silicon are formed, and silicon surfaces concomitantly patterned, when native oxide-coated silicon is scribed with a diamond-tipped instrument in the presence of reactive liqs. Notably, monolayers were prepared (and are prepared in this work) in an open laboratory with reagents that are not degassed. However, while this method is facile, the features originally produced using 2-3 N of force on a diamond tip are irregular, broad (.apprx.100 μm), and deep (.apprx.5 μm). Reducing the force to 0.08 N using an improved tip holder yields narrower features (.apprx.10 μm), but the best features made with a diamond tip using the lighter force still remain quite deep (.apprx.0.1 μm) and rough. Here we show that substantially sharper and shallower features are produced by (a) wetting hydrogen-terminated silicon with a reactive compound and (b) scribing it with a 1/32 in. tungsten carbide ball with a low force (.apprx.0.08 N). It is remarkable that (i) the depth of these features is only 10-20 Å and (ii) their edge widths are sharp (submicron resolution). The resulting features are invisible to the naked eye but are observable by atomic force microscopy, SEM, and time-of-flight secondary ion mass spectrometry. Both Si(100) and Si(111) were successfully modified. Miniature hydrophobic corrals made with this technique were loaded with solutes, for example, colloidal carbon, semiconductor nanocrystals, and DNA, from aqueous solns. with a simple dip. Under appropriate conditions colloidal carbon selectively deposits onto functionalized lines but not in between them.
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 25 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:598434 CAPLUS
DOCUMENT NUMBER: 135:177719
TITLE: Target molecule attachment to surfaces
INVENTOR(S): Chappa, Ralph A.; Hu, Sheau-Ping; Swan, Dale G.; Swanson, Melvin J.; Guire, Patrick E.
PATENT ASSIGNEE(S): Surmodics, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 26 pp., Cont.-in-part of U.S. 5,858,653.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

US 2001014448	A1	20010816	US 1999-227913		19990108
US 6465178	B2	20021015			
US 5858653	A	19990112	US 1997-940213		19970930
CA 2360000	A1	20000713	CA 2000-2360000		20000110
WO 2000040593	A2	20000713	WO 2000-US535		20000110
WO 2000040593	A3	20001228			
W: AU, CA, JP, MX					
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE					
EP 1141385	A2	20011010	EP 2000-903199		20000110
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI					
JP 2002534663	T	20021015	JP 2000-592301		20000110
AU 778265	B2	20041125	AU 2000-24979		20000110
US 2003113792	A1	20030619	US 2000-521545		20000309
US 6762019	B2	20040713			
US 2003148308	A1	20030807	US 2002-192917		20020709
US 2004209305	A1	20041021	US 2004-844667		20040512
US 2005170427	A1	20050804	US 2005-101271		20050406
PRIORITY APPLN. INFO.:			US 1997-940213	A2	19970930
			US 1999-227913	A	19990108
			WO 2000-US535	W	20000110
			US 2000-521545	A1	20000309
			US 2002-192917	A3	20020709

AB Method and reagent composition for covalent attachment of target mols., such as nucleic acids, onto the surface of a substrate are described. The reagent composition includes groups capable of covalently binding to the target mol. Optionally, the composition can contain photoreactive groups for use in attaching the reagent composition to the surface. The reagent composition can be used to provide activated slides for use in preparing microarrays of nucleic acids. Glass slides coated with a copolymer of acrylamide, N-[3-(4-benzoylbenzamido)propyl]methacrylamide (BBA-APMA), and N-succinimidyl 6-maleimidohexanoate (MAL-EAC-NOS) (preparation given) were reacted with amine-modified PCR products from the β-galactosidase gene using microarraying spotting pins.

L4 ANSWER 26 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER:	2000:682505 CAPLUS
DOCUMENT NUMBER:	134:53237
TITLE:	Covalent attachment of oligodeoxyribonucleotides to amine-modified Si (001) surfaces
AUTHOR(S):	Strother, Todd; Hamers, Robert J.; Smith, Lloyd M.
CORPORATE SOURCE:	Department of Chemistry, University of Wisconsin, Madison, WI, 53706-1396, USA
SOURCE:	Nucleic Acids Research (2000), 28(18), 3535-3541 CODEN: NARHAD; ISSN: 0305-1048
PUBLISHER:	Oxford University Press
DOCUMENT TYPE:	Journal
LANGUAGE:	English

AB A recently described reaction for the UV-mediated attachment of alkenes to silicon surfaces is utilized as the basis for the preparation of functionalized silicon surfaces. UV light mediates the reaction of t-butyloxycarbonyl (t-BOC) protected ω-unsatd. amino-alkane (10-aminodec-1-ene) with hydrogen terminated silicon (001). Removal of the t-BOC protecting group yields an aminodecane-modified silicon surface. The resultant amino groups can be coupled to thiol-modified oligodeoxyribonucleotides using a heterobifunctional crosslinker, permitting the preparation of DNA arrays. Two methods for controlling the surface d. of oligodeoxyribonucleotides were explored: in the first, binary mixts. of 10-aminodec-1-ene and dodecene were utilized in the initial UV-mediated coupling reaction; a linear relationship was found between the mole

fraction of aminodecene and the d. of DNA hybridization sites. In the second, only a portion of the t-BOC protecting groups was removed from the surface by limiting the time allowed for the deprotection reaction. The oligodeoxyribonucleotide-modified surfaces were extremely stable and performed well in DNA hybridization assays. These surfaces provide an alternative to gold or glass for surface immobilization of oligonucleotides in DNA arrays as well as a route for the coupling of nucleic acid biomol. recognition elements to semiconductor materials.

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 27 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:475675 CAPLUS
DOCUMENT NUMBER: 133:100417
TITLE: Thermochemically reactive and photoactive polymers and their use in preparation of nucleic acid microarrays
INVENTOR(S): Chappa, Ralph A.; Hu, Sheau-Ping; Swan, Dale G.; Swanson, Melvin J.; Guire, Patrick E.
PATENT ASSIGNEE(S): Surmodics, Inc., USA
SOURCE: PCT Int. Appl., 64 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000040593	A2	20000713	WO 2000-US535	20000110
WO 2000040593	A3	20001228		
W: AU, CA, JP, MX				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 2001014448	A1	20010816	US 1999-227913	19990108
US 6465178	B2	20021015		
CA 2360000	A1	20000713	CA 2000-2360000	20000110
EP 1141385	A2	20011010	EP 2000-903199	20000110
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002534663	T	20021015	JP 2000-592301	20000110
AU 778265	B2	20041125	AU 2000-24979	20000110

PRIORITY APPLN. INFO.:
US 1999-227913 A 19990108
US 1997-940213 A2 19970930
WO 2000-US535 W 20000110

AB Method and reagent composition for covalent attachment of target mols., such as nucleic acids, onto the surface of a substrate. The reagent composition includes groups capable of covalently binding to the target mol. Optionally, the composition can contain photoreactive groups for use in attaching the reagent composition to the surface. The reagent composition can be used to provide activated slides for use in preparing microarrays of nucleic acids. Thus, numerous copolymers containing various combinations of photoreactive, chemical reactive (e.g., esters), or ionic side chains were prepared and used to prepare DNA microarrays on glass slides or on plastic microtiter plates. For example, well in a polystyrene microwell plate were coated with a copolymer of acrylamide, [3-(methacryloylamino)propyl]trimethylammonium chloride, N-succinimidyl-6-methacrylamidohexanoate, and N-[3-(4-benzoylbenzamido)propyl]methacrylamide. The coated plate was used to immobilize an amino-modified oligodeoxyribonucleotide, and the immobilized DNA was used in a hybridization assay. Significant binding and good hybridization signals were observed

L4 ANSWER 28 OF 28 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:221989 CAPLUS
DOCUMENT NUMBER: 126:314404
TITLE: Polymethacryloxypropylhydrosiloxane deactivation as pretreatment of polymer-coated fused silica columns for capillary electrophoresis
AUTHOR(S): Fridstroem, A.; Lundell, N.; Nyholm, L.; Markides, K. E.
CORPORATE SOURCE: Analytical chemistry, University of Uppsala, Uppsala, 751 21, Swed.
SOURCE: Journal of Microcolumn Separations (1997), 9(2), 73-80
CODEN: JMSEEJ; ISSN: 1040-7685
PUBLISHER: Wiley
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A new polymer, polymethacryloxypropylhydrosiloxane (PMAHS), was developed and used as both a deactivating layer and an intermediate layer for stable coating of an uncharged polymer on fused silica capillaries in capillary electrophoresis. The deactivation procedure is based on a silicon hydride dehydrocondensation reaction which produces a thin and heavily crosslinked siloxane resin on the fused silica surface. The resin effectively covers any unreacted silanols, while the methacrylic substituents of the deactivation layer provide surface wettability and reaction sites for covalent binding of a polymeric top layer known to facilitate sepns. of charged biomols. In this study, polyacrylamide was statically coated and crosslinked to the deactivation polymer. The PMAHS-deactivated columns with crosslinked polyacrylamide coatings gave an electroosmotic flow of < 0.4 + 10-4 cm2 V-1 s-1, independent of pH, between pH 2.5 and 9.2. Four basic proteins were used to evaluate the performance of the columns. The migration times were reproducible with a relative standard deviation of <0.5%. In addition, the efficiency of the crosslinked polyacrylamide column was stable over at least 5 days of harsh testing.

=> log y

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	138.14	138.80

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-24.18	-24.18

STN INTERNATIONAL LOGOFF AT 09:16:21 ON 01 MAY 2007